

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: OLAV SOLGAARD; JONATHAN P. HERITAGE; AMAL R. BHATTARAI
Serial No.:
Filed:
For: MULTI-WAVELENGTH CROSS-CONNECT OPTICAL SWITCH
Group No.:
Examiner:
Docket No.: UC97-156-8

**Assistant Commissioner for Patents
Washington, D.C. 20231**

FIRST PRELIMINARY AMENDMENT

Dear Sir:

Please enter the following preliminary amendments in connection with the
above-identified U.S. patent application which is a continuation of co-pending
application serial number 09/618,320 filed on July 18, 2000:

IN THE SPECIFICATION:

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Please replace the paragraph beginning on page 1, line 5 with the following:

This application is a continuation of application serial number 09/618,320 filed on July 18, 2000, which is a continuation of application serial number 09/022,591 filed on February 12, 1998, now U.S. Patent 6,097,859, which claims priority from provisional application serial number 60/038,172 filed on February 13, 1997. This application is also related to co-pending application serial number 09/748,025 filed on 12/21/2000, co-pending application serial number 09/766,529 filed on 01/19/2001, co-pending application serial number 09/780,122 filed on 02/08/2001, and co-pending application serial number 09/813,446 filed on March 20, 2001.

Please replace the paragraph beginning on page 16, line 19 with the following:

Referring now to FIG. 6 and FIG. 7, the fiber-optic switch, being symmetric about its center, can be implemented with a symmetry mirror 58 in the symmetry plane 60. This essentially cuts the component count in half. The output channels may either be on the input fibers and separable by optical rotators (not shown) or on a separate output fiber array (not shown) that is placed above the input array. In the latter case, the micromirror array 62 and the symmetry mirror 58 are slightly tilted about an axis, such that the light is directed to the output fiber array.

1. Personal Information	
Name	Mr. John Doe
Address	123 Main St, New York, NY 10001
Phone	(212) 555-1234
Age	35
Gender	Male
Marital Status	Single
Education	High School Graduate
Occupation	Software Engineer
Income	\$75,000 per year
Assets	Car, House, Savings
Liabilities	Student Loan, Credit Card
Emergency Contact	John Doe, (212) 555-1234
Signature	[Signature]
Date	10/26/2023

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Please add the following new claims:

31. An optical switch, comprising at least one array of actuated mirrors configured for switching an optical beam from an input port to any output port.

32. An optical switch, comprising at least one array of actuated mirrors configured for switching an optical beam from any input port to an output port.

33. An optical switch as recited in claim 31 or 32, further comprising means for positioning said optical beam onto at least one array of actuated mirrors.

34. An optical switch as recited in claim 33, wherein said means for positioning comprises at least one lens.

35. An optical switch as recited in claim 31 or 32, further comprising at least one imaging component configured for positioning said optical beam onto at least one array of actuated mirrors.

36. An optical switch as recited in claim 35, wherein said imaging component comprises at least one lens.

37. An optical switch as recited in claim 31 or 32, wherein said optical switch is configured for a specific mirror in at least one array of actuated mirrors to receive an optical beam from a corresponding one specific input port.

38. An optical switch as recited in claim 31 or 32, wherein said optical switch is configured for a specific output port to receive an optical beam from a corresponding one specific mirror in at least one array of actuated mirrors.

39. An optical switch as recited in claim 31 or 32,
wherein said optical switch is configured for a specific mirror in at least one array of actuated mirrors to receive an optical beam from a corresponding one specific input port; and

wherein said optical switch is further configured for a specific output port to receive an optical beam from a corresponding one specific mirror in said at least one array of actuated mirrors.

40. An optical switch as recited in claim 31 or 32, wherein at least one array of actuated mirrors comprises a two-dimensional array.

41. An optical switch, comprising:

- (a) at least one input port;
- (b) at least one output port; and
- (c) at least one array of actuated mirrors configured for switching an optical beam from an input port to any output port.

42. An optical switch, comprising:

- (a) at least one input port;
- (b) at least one output port; and
- (c) at least one array of actuated mirrors configured for switching an optical beam from any input port to an output port.

43. An optical switch as recited in claim 41 or 42, further comprising means for positioning said optical beam onto at least one array of actuated mirrors.

44. An optical switch as recited in claim 43, wherein said means for positioning comprises at least one lens.

45. An optical switch as recited in claim 41 or 42, further comprising at least one imaging component configured for positioning said optical beam onto at least one array of actuated mirrors.

46. An optical switch as recited in claim 45, wherein said imaging component comprises at least one lens.

47. An optical switch as recited in claim 41 or 42, wherein said optical switch is configured for a specific mirror in at least one array of actuated mirrors to receive an optical beam from a corresponding one specific input port.

48. An optical switch as recited in claim 41 or 42, wherein said optical switch is configured for a specific output port to receive an optical beam from a corresponding one specific mirror in at least one array of actuated mirrors.

49. An optical switch as recited in claim 41 or 42,
wherein said optical switch is configured for a specific mirror in at least one array of actuated mirrors to receive an optical beam from a corresponding one specific input port; and

wherein said optical switch is further configured for a specific output port to receive an optical beam from a corresponding one specific mirror in said at least one array of actuated mirrors.

50. An optical switch as recited in claim 41 or 42, wherein at least one array of actuated mirrors comprises a two-dimensional array.

51. An optical switch, comprising:

- (a) at least one input port;
- (b) at least one output port;
- (c) at least one input array of actuated mirrors; and
- (d) at least one output array of actuated mirrors;
- (e) said input and output arrays of actuated mirrors configured for switching an optical beam from an input port to any output port.

52. An optical switch, comprising:

- (a) at least one input port;
- (b) at least one output port;
- (c) at least one input array of actuated mirrors; and
- (d) at least one output array of actuated mirrors;
- (e) said input and output arrays of actuated mirrors configured for switching

an optical beam from any input port to an output port.

53. An optical switch as recited in claim 51 or 52, further comprising means for positioning said optical beam onto at least one input array of actuated mirrors.

54. An optical switch as recited in claim 53, wherein said means for positioning comprises at least one lens.

55. An optical switch as recited in claim 51 or 52, further comprising at least one imaging component configured for positioning said optical beam onto at least one input array of actuated mirrors.

56. An optical switch as recited in claim 55, wherein at least one imaging component comprises at least one lens.

57. An optical switch as recited in claim 51 or 52, wherein said optical switch is configured for a specific mirror in at least one input array of actuated mirrors to receive an optical beam from a corresponding one specific input port.

58. An optical switch as recited in claim 51 or 52, wherein said optical switch is configured for a specific output port to receive an optical beam from a corresponding one specific mirror in at least one output array of actuated mirrors.

59. An optical switch as recited in claim 51 or 52,
wherein said optical switch is configured for a specific mirror in at least one input array of actuated mirrors to receive an optical beam from a corresponding one specific input port; and

wherein said optical switch is further configured for a specific output port to receive an optical beam from a corresponding one specific mirror in at least one output array of actuated mirrors.

60. An optical switch as recited in claim 51 or 52, wherein each mirror in at least one input array of actuated mirrors is configured to steer an incident optical beam to any, but not more than one for a given setting, mirror in at least one output array of actuated mirrors.

61. An optical switch as recited in claim 51 or 52, wherein each output mirror in at least one output array of actuated mirrors can be set to receive an optical beam

from any, but not more than one for a given setting, mirror in at least one input array of actuated mirrors.

62. An optical switch as recited in claim 51 or 52,

wherein each mirror in at least one input array of actuated mirrors is configured to steer an incident optical beam to any, but not more than one for a given setting, mirror in at least one output array of actuated mirrors; and

wherein each output mirror in at least one output array of actuated mirrors can be set to receive an optical beam from any, but not more than one for a given setting, mirror in at least one input array of actuated mirrors.

63. An optical switch as recited in claim 51 or 52, wherein at least one array of actuated mirrors comprises a two-dimensional array.

64. An optical switch as recited in claim 51 or 52, wherein at least one output array of actuated mirrors is spatially separated from at least one input array of actuated mirrors.

REMARKS

This Preliminary Amendment is being submitted in connection with a continuation of copending application serial number 09/618,320 filed on July 18, 2000.

Entry is respectfully requested.

A telephone interview is respectfully requested prior to the first action on the merits.

09/618,320

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The paragraph beginning on page 1, line 5 has been amended as follows:

This application [claims priority from U.S. provisional application serial number 60/038,172 filed on February 13, 1997] is a continuation of application serial number 09/618,320 filed on July 18, 2000, which is a continuation of application serial number 09/022,591 filed on February 12, 1998, now U.S. Patent 6,097,859, which claims priority from provisional application serial number 60/038,172 filed on February 13, 1997. This application is also related to co-pending application serial number 09/748,025 filed on 12/21/2000, co-pending application serial number 09/766,529 filed on 01/19/2001, co-pending application serial number 09/780,122 filed on 02/08/2001, and co-pending application serial number 09/813,446 filed on March 20, 2001.

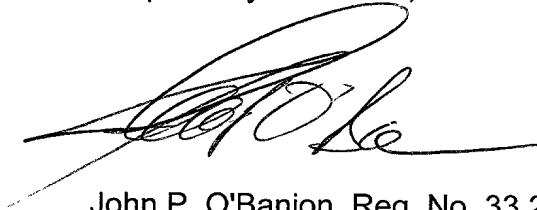
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Date:

5/4/01

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'John P. O'Banion', with a stylized flourish at the end.

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